

7th & 8th

Algebra 1

Name \_\_\_\_\_

ID: 4

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Review for Semester Exam Fall 2020

Date \_\_\_\_\_

Period \_\_\_\_\_

Solve each equation.

1)  $8(7x+1) = -104$

A) {1}

B) {6}

C) {-2}

D) {-10}

$$8(7x+1) = -104$$

$$56x + 8 = -104$$

$$\frac{56x}{56} = \frac{-112}{56}$$

$x = -2$

Evaluate each using the values given.

2)  $m + n \div 6 + m$ ; use  $m = 1$ , and  $n = 6$

A) 3

B) 6

C) 2

D) 1

$$m + n \div 6 + m$$

$$1 + 6 \div 6 + 1$$

$$1 + 1 + 1 = 3$$

Solve each equation.

3)  $-6(-5b+3) = 8(1+7b)$

A) {6}

B) {-1}

C) {8}

D) No solution.

$$-6(-5b+3) = 8(1+7b)$$

$$30b - 18 = 8 + 56b$$

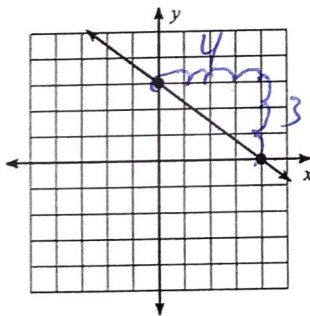
$$-18 = 8 + 26b$$

$$\frac{-26}{26} = \frac{26b}{26}$$

$-1 = b$

Find the slope of each line.

4)



rise  
run

$$= \frac{-3}{4}$$

A)  $-\frac{4}{3}$

B)  $\frac{3}{4}$

C)  $-\frac{3}{4}$

D)  $\frac{4}{3}$

Write the slope-intercept form of the equation of the line described.

5) through: (1, 2), parallel to  $y = -2x + 2$  They have the same slope.

- A)  $y = 3x + 4$       B)  $y = -2x + 4$   
 C)  $y = 2x + 4$       D)  $y = 4x - 2$

$m = -2$  (1, 2)

$$y - y_1 = m(x - x_1)$$

$$y - 2 = -2(x - 1)$$

$$y - 2 = -2x + 2$$

$$y = -2x + 4$$

Solve each equation.

6)  $-10 + \frac{v}{5} = -10$

- A)  $\{-4\}$       B)  $\{0\}$   
 C)  $\{19\}$       D)  $\{-12\}$

$$-10 + \frac{v}{5} = -10$$

$$(5) \frac{v}{5} = 0(5)$$

$$v = 0$$

Solve each inequality and graph its solution.

7)  $-8(8 + 3r) < -8(2r + 8)$

A)  $r > 0$ :

B)  $r > 8$ :

C)  $r > 0$ :

D)  $r > -33$ :

$$-8(8 + 3r) < -8(2r + 8)$$

$$-64 - 24r < -16r - 64$$

$$-64 < 8r - 64$$

$$\frac{0}{8} < \frac{8r}{8}$$

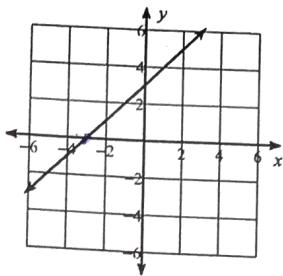
$$0 < r$$

$$r > 0$$

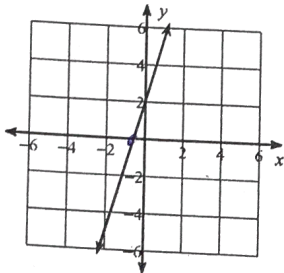
Sketch the graph of each line.

8)  $x$ -intercept = 3,  $y$ -intercept = 3

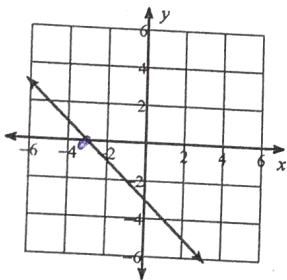
A)



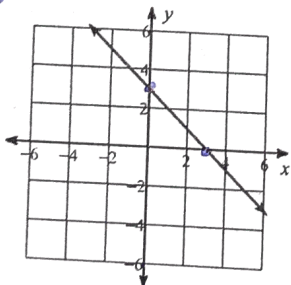
B)



C)



D)



Find the slope of each line.

9)  $y = 5x - 5$

$m = 5$

A)  $-\frac{1}{5}$

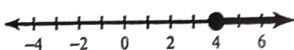
B)  $-5$


C)  $\frac{1}{5}$

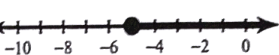
D)  $5$

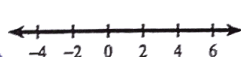
Solve each inequality and graph its solution.

10)  $93 \geq 4(5p+4) - 3$

A)  $p \geq 4$ : 

**B)  $p \leq 4$** : 

C)  $p \geq -5$ : 

D) No solution.: 

$$93 \geq 4(5p+4) - 3$$

$$93 \geq 20p + 16 - 3$$

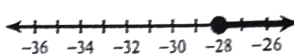
$$93 \geq 20p + 13$$

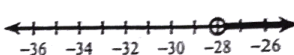
$$\begin{array}{r} 93 \\ -13 \\ \hline 80 \end{array} \geq 20p$$

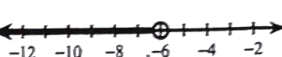
$$\frac{80}{20} \geq \frac{20p}{20}$$

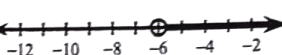
$$4 \geq p$$

11)  $\frac{k}{6} + 9 < 8$

A)  $k < -28$ : 

B)  $k > -28$ : 

**C)  $k < -6$** : 

D)  $k > -6$ : 

$$\frac{k}{6} + 9 < 8$$

$$\frac{k}{6} < -1$$

$$\frac{k}{6} < -1(6)$$

$$k < -6$$

Find the slope of the line through each pair of points.

12)  $(3, -10), (16, -2)$

A)  $-\frac{13}{8}$

**B)  $\frac{8}{13}$**

C)  $-\frac{8}{13}$

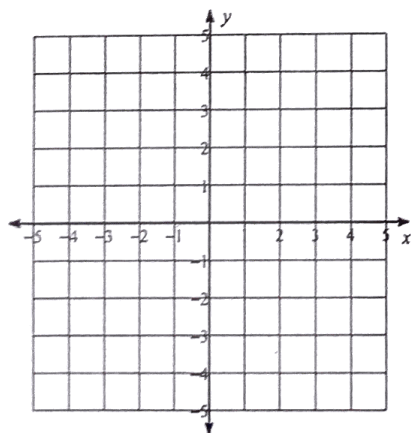
D)  $\frac{13}{8}$

$$\frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{-2 - (-10)}{16 - 3} = \frac{8}{13}$$

Solve each system by graphing.

13)  $7x + 4y = -16$   
 $x + 2y = 2$



use graphing calculator  
desmos

$(-4, 3)$

**A)  $(-4, 3)$**

B)  $(4, 3)$

C)  $(-4, 4)$

D)  $(3, -4)$

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

14) Slope = -5, y-intercept = -4

A)  $y = -5x - 4$

B)  $y = -2x - 5$

C)  $y = 3x - 5$

D)  $y = -4x - 5$

$$y = mx + b$$

$$y = -5x - 4$$

Evaluate each using the values given.

15)  $6y + 4y - x$ ; use  $x = 1$ , and  $y = 5$

A) 48

B) 49

C) 45

D) 44

$$6y + 4y - x$$

$$10y - x$$

$$10(5) - 1$$

$$50 - 1$$

$$49$$

$$6y + 4y - x$$

$$6(5) + 4(5) - 1$$

$$30 + 20 - 1$$

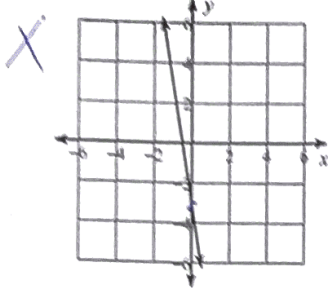
$$50 - 1$$

$$49$$

Sketch the graph of each line.

16)  $y = 6x - 3$

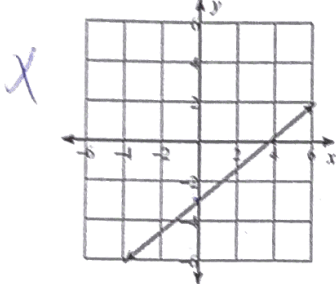
A)



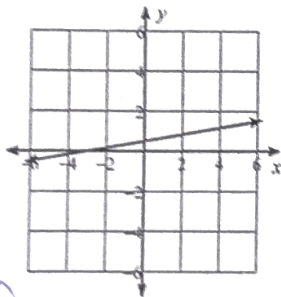
$m = 6$

$b = -3$

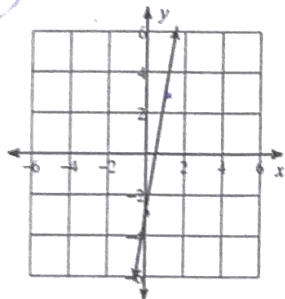
B)



C)



D)



$y = 6x - 3$

$m = 6$

$b = -3$

Solve each proportion.

17)  $\frac{m+3}{m} = \frac{5}{2}$

A)  $\{-1.5\}$

B)  $\{-4.4\}$

C)  $\{3\}$

D)  $\{2\}$

~~$\frac{m+3}{m} = \frac{5}{2}$~~

$2(m+3) = 5(m)$

$2m + 6 = 5m$   
 $-2m \quad -2m$

$6 = 3m$   
 $\frac{6}{3} = \frac{3m}{3}$

$2 = m$

Write the standard form of the equation of each line.

18)  $y + 5 = 4(x + 1)$

A)  $4x - y = 1$

B)  $4x + y = 1$

C)  $4x - y = -1$

D)  $x - 4y = -1$

$\rightarrow Ax + By = C$

$y + 5 = 4(x + 1)$

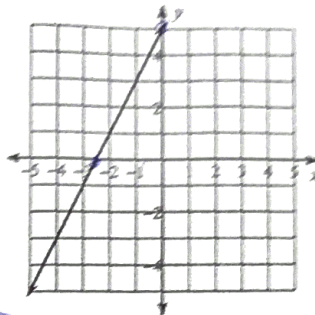
$y + 5 = 4x + 4$   
 $-5$                        $-5$

$y = 4x - 1$  ~~is not~~ slope intercept form.

$\rightarrow (-4x + y = -1)$

$4x - y = 1$       A

19)



A)  $2x - y = -5$

B)  $5x + y = -4$

C)  $5x - y = -4$

D)  $5x - y = 4$

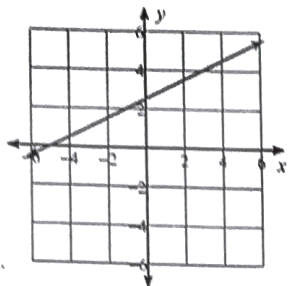
use calculator.

$(2) \circ H > 7 H \circ 3$

Sketch the graph of each line.

20)  $y = -2x - 5$

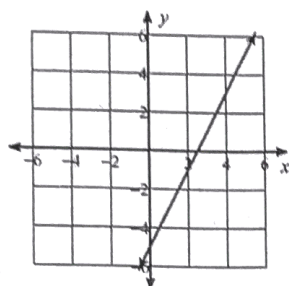
~~A)~~



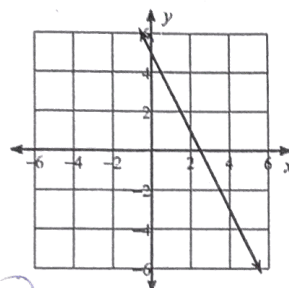
$m = -2$

$m = -5$

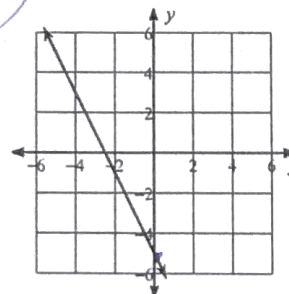
~~B)~~



~~C)~~



D)

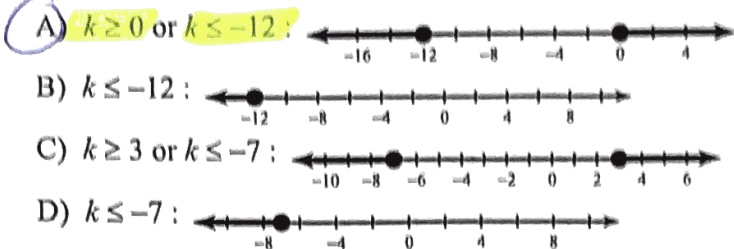


$y = -2x - 5$



Solve each compound inequality and graph its solution.

21)  $3 + 8k \geq 7k + 3$  or  $2k + 3 \leq k - 9$



$$\begin{array}{r} 3k + 8 \geq 7k + 3 \\ -3 \quad -3 \\ \hline 8k \geq 7k \end{array}$$

$$\begin{array}{r} 8k \geq 7k \\ -7k \quad -7k \\ \hline k \geq 0 \end{array}$$

$$k \geq 0$$

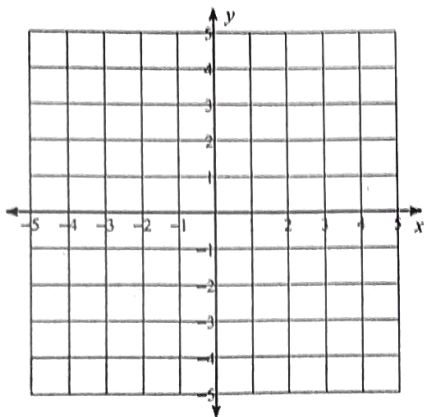
$$\begin{array}{r} 2k + 3 \leq k - 9 \\ -k \quad -k \\ \hline k + 3 \leq -9 \end{array}$$

$$\begin{array}{r} k + 3 \leq -9 \\ -3 \quad -3 \\ \hline k \leq -12 \end{array}$$

$$k \leq -12$$

Solve each system by graphing.

22)  $x - 3y = -6$   
 $x - 3y = 9$



parallel lines have no solution.

- A) No solution
- B) (4, -2)
- C) (2, -2)
- D) (2, -3)

$$\begin{array}{r} -6(4a - 5) + 4 \\ -24a + 30 + 4 \\ -24a + 34 \end{array}$$

Simplify each expression.

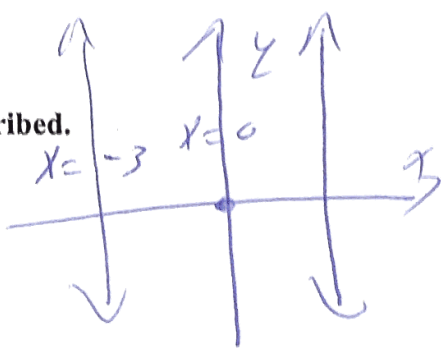
23)  $-6(4a - 5) + 4$

- A)  $-24a + 34$
- B)  $47a - 35$
- C)  $-5a + 70$
- D)  $-48 - 45a$

Write the slope-intercept form of the equation of the line described.

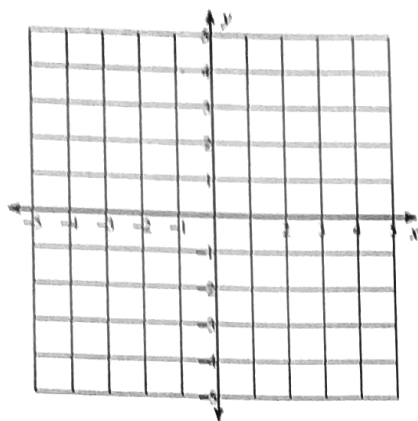
24) through:  $(-3, -5)$ , parallel to  $x = 0$

- A)  $x = -3$
- B)  $y = \frac{1}{3}$
- C)  $x = 3$
- D)  $x = -1$



Solve each system by graphing.

25)  $7x - y = -3$   
 $7x - y = 3$



parallel lines have  
 No solution.

- A) (2, 3)      B) (2, -3)  
 C) (-3, 2)    **D) No solution**

Write the slope-intercept form of the equation of the line described.

26) through:  $(-3, -1)$ , perp. to  $y = -\frac{3}{2}x - 3$

- A)  $y = \frac{4}{3}x + \frac{2}{3}$       B)  $y = -x + \frac{2}{3}$   
 C)  $y = x + \frac{2}{3}$       **D)  $y = \frac{2}{3}x + 1$**

opp reciprocal

$m = \frac{2}{3} \quad (-3, -1)$

$y - y_1 = m(x - x_1)$

$y + 1 = \frac{2}{3}(x + 3)$

$y + 1 = \frac{2}{3}x + 2$   
 $-1$

$y = \frac{2}{3}x + 1$

Solve each equation for the indicated variable.

27)  $kx = w + v$ , for  $x$

A)  $x = -kw - kv$

B)  $x = \frac{k}{w + v}$

**C)  $x = \frac{w + v}{k}$**

D)  $x = w + v + k$

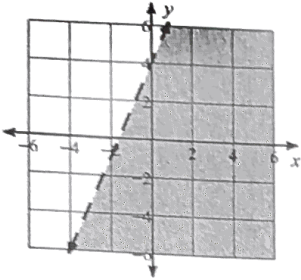
$\frac{kx}{k} = \frac{w + v}{k}$

**$x = \frac{w + v}{k}$**

Sketch the graph of each linear inequality.

28)  $5x - 2y > -8$

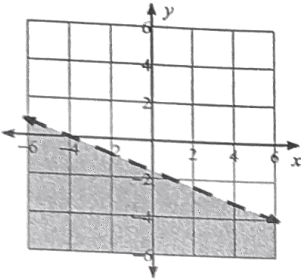
A)



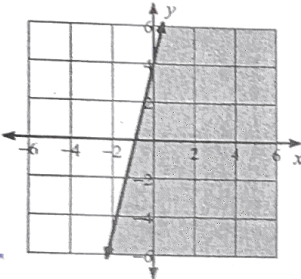
$$\begin{array}{r} 5x - 2y > -8 \\ -5x \quad \quad -5x \\ \hline -2y > -5x - 8 \\ \frac{-2y}{-2} > \frac{-5x - 8}{-2} \\ y < \frac{5}{2}x + 4 \end{array}$$

B)

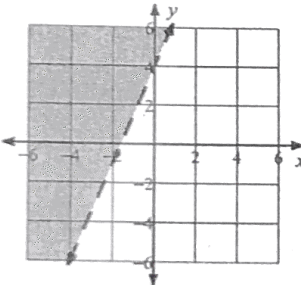
~~X~~



~~C)~~



~~D)~~

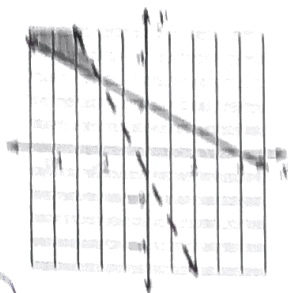


Sketch the solution to each system of inequalities.

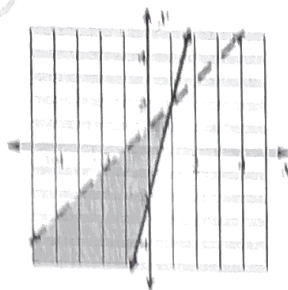
20)  $y \leq 4x - 2$

$y \leq x + 1$

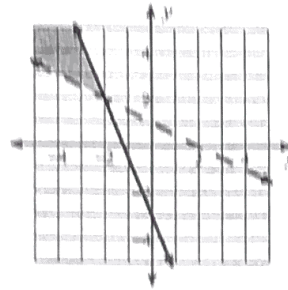
A)



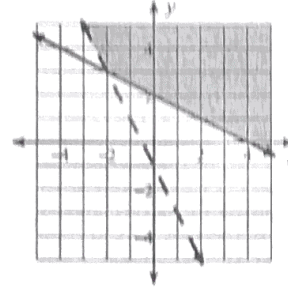
B)



C)



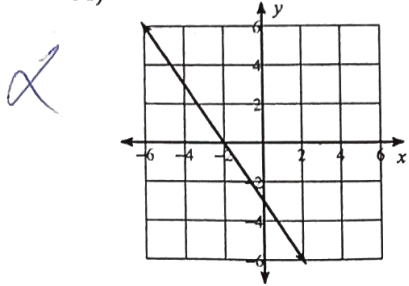
D)



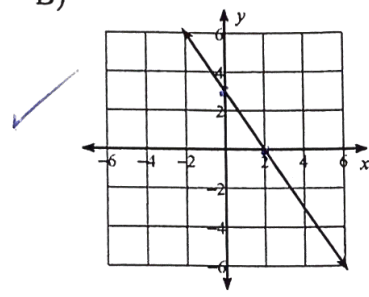
Sketch the graph of each line.

30)  $x$ -intercept = 2,  $y$ -intercept = 3

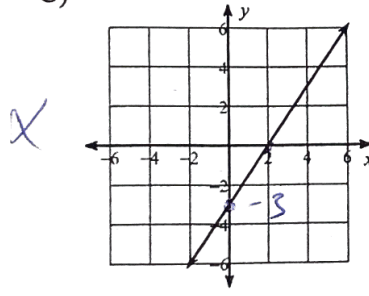
A)



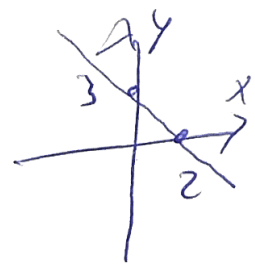
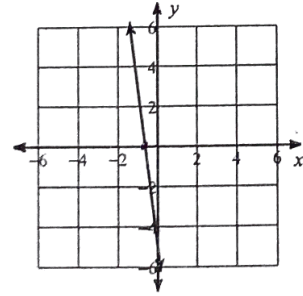
B)



C)

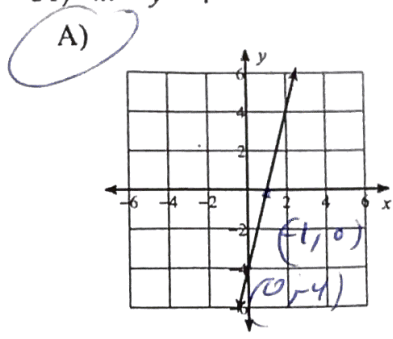


D)



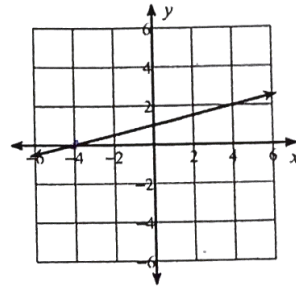
31)  $4x - y = 4$

A)

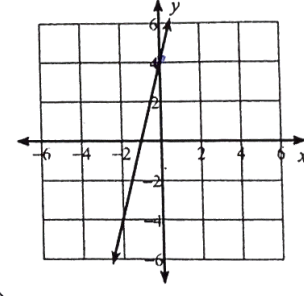


we  
calculator  
to graph.

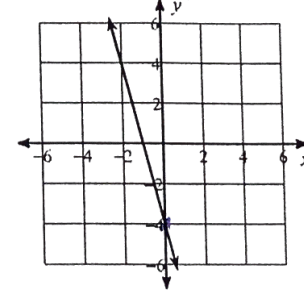
B)



C)



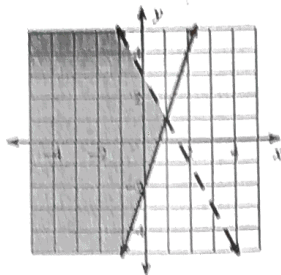
D)



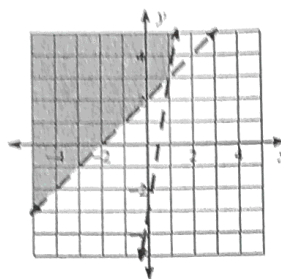
Sketch the solution to each system of inequalities.

32)  $x - y > -2$   
 $5x - y \geq 2$

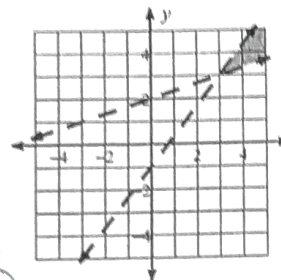
A)



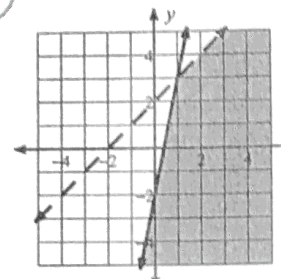
B)



C)



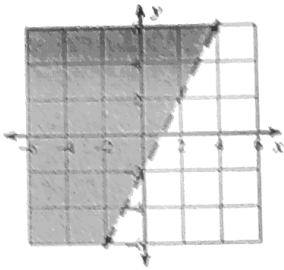
D)



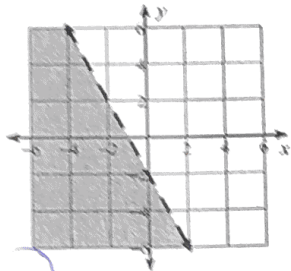
Sketch the graph of each linear inequality.

33)  $x - 2y > -2$

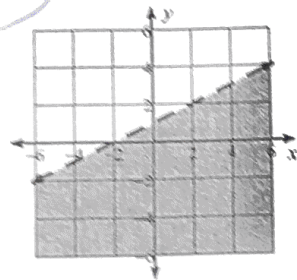
A)



B)

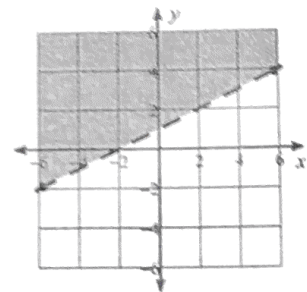


C)



$$x - 2y > -2$$

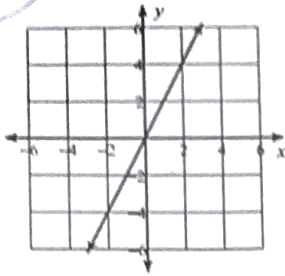
D)



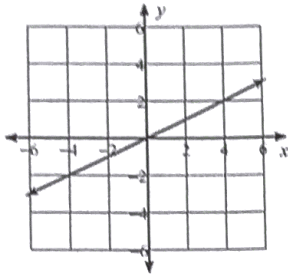
Sketch the graph of each line.

34)  $2x - y = 0$

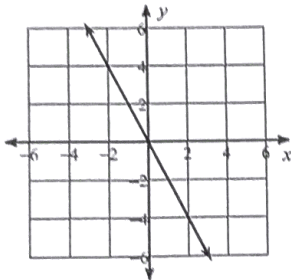
A)



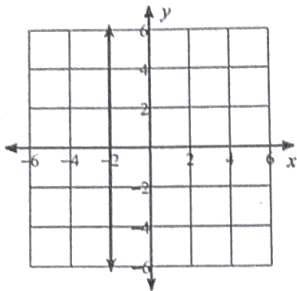
B)



C)



D)



Write the slope-intercept form of the equation of the line described.

35) through:  $(1, 5)$ , perp. to  $y = -\frac{1}{3}x - 5$

A)  $y = 2x + 2$

B)  $y = -2x + 2$

C)  $y = -x + 2$

D)  $y = 3x + 2$

$x \quad y$   
*opp recip*  
 $m = \frac{3}{1} \quad (1, 5)$   
 $m = 3$   
 $y - y_1 = m(x - x_1)$   
 $y - 5 = 3(x - 1)$   
 $y + 5 = 3x - 3$   
 $+5 \quad +5$   
 $y = 3x + 2$



Solve each inequality and graph its solution.

36)  $7(-7 + 2r) - 7r \geq -4r + 4(7r - 8)$

A)  $r \leq -16$ :

B) { All real numbers. } :

C)  $r \leq -1$ :

D)  $r \leq -17$ :

$$\begin{aligned}
 &7(-7 + 2r) - 7r \geq -4r + 4(7r - 8) \\
 &-49 + 14r - 7r \geq -4r + 28r - 32 \\
 &-49 + 7r \geq -36r + 28 \\
 &\quad \quad \quad -7r \quad \quad \quad -7r \\
 \hline
 &-49 \geq -43r + 28 \\
 &\quad \quad \quad -28 \quad \quad \quad -28 \\
 \hline
 &-77 \geq -43r \\
 &\quad \quad \quad -43 \quad \quad \quad -43 \\
 \hline
 &1.7 \leq r
 \end{aligned}$$

Simplify each expression.

37)  $-2(6n - 3) + 4(3n - 2)$

A)  $-2$

B)  $16n + 15$

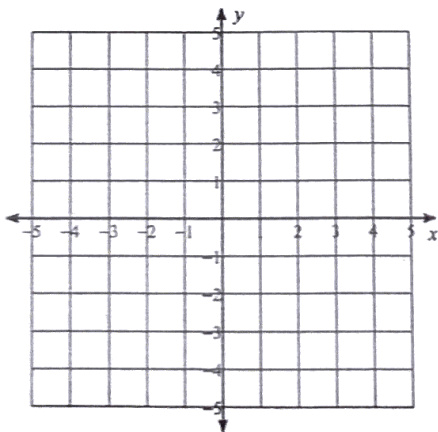
C)  $-12n - 30$

D)  $-12n - 27$

$$\begin{aligned}
 &-2(6n - 3) + 4(3n - 2) \\
 &-12n + 6 + 12n - 8 \\
 &\quad \quad \quad -2
 \end{aligned}$$

Solve each system by graphing.

38)  $x - y = -1$   
 $y = 4$



use calculator.

$(3, 4)$

A)  $(-3, -4)$





B)  $(-3, 4)$

C)  $(-3, -2)$

D)  $(3, 4)$

Solve each compound inequality and graph its solution.

39)  $5 - 10x < -9x - 6$  or  $-3x - 8 \geq 9x - 8$

- A)  $x \geq 7$ : 
- B)  $x > 11$  or  $x \leq 0$ : 
- C)  $x \geq 5$ : 
- D) { All real numbers. } : 

Handwritten work for problem 39:

$$5 - 10x < -9x - 6$$

$$16 < x$$


---


$$-3x - 8 \geq 9x - 8$$

$$-12x \geq 0$$

$$x \leq 0$$


---


$$11 < x$$

$$x > 11$$

(B)

Solve each equation for the indicated variable.

- 40)  $mx = n - p$ , for  $x$
- A)  $x = -n + p + m$
- B)  $x = \frac{n - p}{m}$
- C)  $x = -\frac{m}{n - p}$
- D)  $x = mn - mp$

Handwritten work for problem 40:

$$mx = n - p \text{ for } x$$

$$\frac{mx}{m} = \frac{n - p}{m}$$

$$x = \frac{n - p}{m}$$

Solve each equation.

- 41)  $8(n + 5) + 5(2 - n) = 62$
- A) No solution.
- B) {8}
- C) {-3}
- D) {4}

Handwritten work for problem 41:

$$8(n + 5) + 5(2 - n) = 62$$

$$8n + 40 + 10 - 5n = 62$$

$$3n + 50 = 62$$

$$3n - 50 = 12$$

$$\frac{3n}{3} = \frac{12}{3}$$

$$n = 4$$

Solve each equation for the indicated variable.

- 42)  $\frac{x}{c} = \frac{d}{r}$ , for  $x$
- A)  $x = -\frac{cd}{r}$
- B)  $x = -cd + r$
- C)  $x = -\frac{r}{cd}$
- D)  $x = \frac{cd}{r}$

Handwritten work for problem 42:

$$\frac{x}{c} = \frac{d}{r}$$

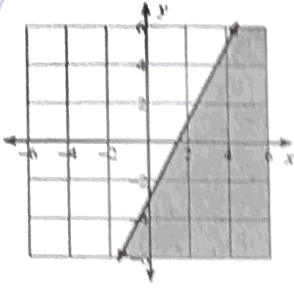
$$\frac{xr}{r} = \frac{cd}{r}$$

$$x = \frac{cd}{r}$$

Sketch the graph of each linear inequality.

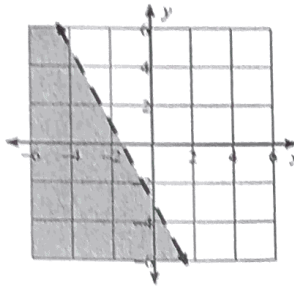
43)  $y \leq 2x - 3$

A)

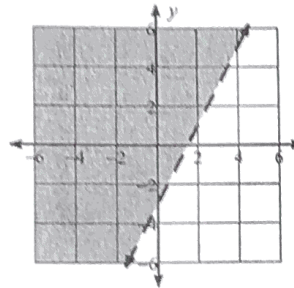


✓ use calculator

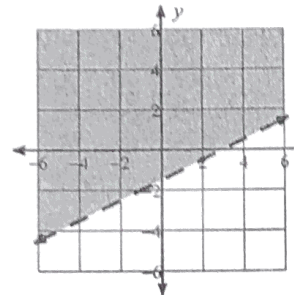
B)



C)



D)



Simplify. Write each answer in scientific notation.

44)  $(7.5 \times 10^4)(9.4 \times 10^3)$

A)  $7.05 \times 10^8$

B)  $7.979 \times 10^0$

C)  $7.05 \times 10^{-3}$

D)  $7.05 \times 10^3$

$7.5 \cdot 9.4 = 70.5$   
 $10^4 \cdot 10^3 = 10^{4+3} = 10^7$   
 $70.5 \times 10^7 = 7.05 \times 10^8$

$$45) \frac{7 \times 10^1}{7.17 \times 10^3} \quad 1-3$$

- A)  $9.763 \times 10^2$   
 B)  $9.763 \times 10^{-2}$   
 C)  $9.763 \times 10^{-4}$   
 D)  $9.763 \times 10^{-3}$

$$9.763 \times 10^{-2-1}$$

$$9.763 \times 10^{-3}$$

$$46) \frac{5.2 \times 10^3}{4.08 \times 10^3}$$

- A)  $2.122 \times 10^7$   
 B)  $12.75 \times 10^{-1}$   
 C)  $1.275 \times 10^0$   
 D)  $1.275 \times 10^{-1}$

$$1.2745 \times 10^0$$

Simplify. Your answer should contain only positive exponents.

$$47) 2a^{-4} \cdot a^2b^{-2}$$

- A)  $\frac{2}{a^2b^2}$   
 C)  $\frac{2a}{b^3}$

- B)  $12a^5$   
 D)  $\frac{3a^2}{b^2}$

$$2a^{-2}b^{-2}$$

$$\frac{2}{a^2b^2}$$

$$48) 3yx^3 \cdot 3x^0$$

- A)  $\frac{6y^7}{x}$

- C)  $9yx^3$

- B)  $16y^2$   
 D)  $\frac{4y^8}{x^3}$

$$9yx^3$$

$$49) (4x^{-2}y^4)^3$$

- A)  $64y^9$   
 C)  $4y^8$

- B)  $\frac{1}{16x^{12}}$   
 D)  $\frac{64y^{12}}{x^6}$

$$4^3 x^{-6} y^{12}$$

$$64 x^{-6} y^{12}$$

$$\frac{64 y^{12}}{x^6}$$

$$50) (3b^{-2})^{-1}$$

- A)  $\frac{b^6}{16a^4}$   
 C)  $\frac{b^4}{16a^4}$

- B)  $\frac{a^8}{81b^8}$   
 D)  $\frac{b^2}{3}$

$$3^{-1} b^2$$

$$\frac{b^2}{3}$$